

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 78.28**WELDING INSPECTION REPORT****Resident Engineer:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-030045**Date Inspected:** 19-Sep-2013**Project Name:** SAS Superstructure**OSM Arrival Time:** 1500**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2330**Contractor:** Steward Machine Co.**Location:** Birmingham, AL**CWI Name:** Fred Hudson / Jimmy Brewer**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** E2 Shear Key Anchorages**Summary of Items Observed:**

Quality Assurance Inspector (QAI) Andrew Webster was present on the date and times noted above in order to observe the fabrication and Quality Control (QC) functions performed by Steward Machine Company for the E2 Shear Key Anchorages for the SFOBB project. The following items were observed:

**Steward Machine - Plant 1:**

This QAI performed a walkthrough at the shop to verify plates on site and to observe Steward Machine personnel at work machining and welding. Work performed at the Steward Machine shop as noted below:

CNC Machine #230 milling assembly S3B. (Milling to size)

CNC Machine #231 milling assembly S10C. (Machining the holes in the four lugs)

The following plates were noted staged throughout the shop in various stages of processing.

**Bay 4 – Plates:**

S3B-e3. Formed, stressed relieved, partially machined and stud welded.

S3C-a3. Formed, stressed relieved and partially machined.

S3C-b3. Formed, stressed relieved and partially machined.

S3C-c3. Formed, stressed relieved and partially machined.

S3C-d3. Formed, stressed relieved and partially machined.

S3C-e3. Formed, stressed relieved, partially machined and stud welded.

S3C-f3. Formed, stressed relieved and partially machined.

S3C-g3. Formed, stressed relieved and partially machined.

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## WELDING INSPECTION REPORT

( Continued Page 2 of 3 )

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S3C-h3. Formed, stressed relieved and partially machined.

S4B-e4. Formed, stressed relieved, partially machined and stud welded.

S4C-e4. Formed, stressed relieved, partially machined and stud welded.

Pallet of r3, m3, k3 and j3 plates.

p3 (x8). Cut, beveled and stud welded.

S4C assembly:

This QAI noted the welding of the above mentioned assembly in the welding jig. The welding was done by qualified welders Benjamin Rhodes (481) and John Roy (469). The welding was done to the approved welding procedure (WPS) P2-W126-B. All welding done was monitored by Certified Welding Inspector (CWI) Fred Hudson. Welding was done on side B.

This QAI noted the welding of the above mentioned assembly in the welding jig for night shift. The welding was done by qualified welders Daniel Rowe (73) and Jeffery Hennington (476). The welding was done to the approved welding procedure (WPS) P2-W126-B. All welding done was monitored by Certified Welding Inspector (CWI) Jimmy Brewer. Welding was continued on side B upon completion of side B the part was flipped over and welding on side A started.

S4B assembly:

This QAI noted the above mentioned assembly was held in position while the e4 plate was put into place as a test fit to verify it would work before blasting. After the e4 plate was removed this QAI witnessed the QC Inspector MPT the S4B assembly on sides A and B as well as the west end. During their inspection two indications were marked for repair on side A.

This QAI was informed that the two repairs for the S4B assembly were finished and that the assembly was ready for QA final MPT. This QAI performed the required MPT verification on side A and B as well as the west end.

S10C Assembly:

The above mentioned assembly was moved from machine #231 to the floor at which time this QAI witnessed the QC Inspector MPT the lug welds. After the QC Inspector was done with his MPT inspection this QAI performed the required MPT verification on the four lug weld as well as a final MPT on side A and side B of the S10C assembly.

NON-DESTRUCTIVE TESTING (NDT).

The QA performed NDT on the following.

Assembly S10C (Final side A including repair areas) at Steward Plant 1:

- Visual Testing (VT) & Magnetic Particle Testing (MPT) Accept. (See TL-6028 for detailed information.)

Assembly S10C (Final side B including repair area) at Steward Plant 1:

- Visual Testing (VT) & Magnetic Particle Testing (MPT) Accept. (See TL-6028 for detailed information.)

Assembly S10C Lugs (Final (x4)) at Steward Plant 1:

- Visual Testing (VT) & Magnetic Particle Testing (MPT) Accept. (See TL-6028 for detailed information.)

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## WELDING INSPECTION REPORT

( Continued Page 3 of 3 )

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Assembly S4B (Final side A) at Steward Plant 1:

- Visual Testing (VT) & Magnetic Particle Testing (MPT) Accept. (See TL-6028 for detailed information.)

Assembly S4B (Final side B) at Steward Plant 1:

- Visual Testing (VT) & Magnetic Particle Testing (MPT) Accept. (See TL-6028 for detailed information.)

Assembly S4B (Final West End) at Steward Plant 1:

- Visual Testing (VT) & Magnetic Particle Testing (MPT) Accept. (See TL-6028 for detailed information.)

The Non Destructive Testing (NDT) listed above were observed performed and accepted by the QC Inspectors prior to the QA Inspector performing the tests. The QC Inspectors performed 100% NDT with the QA Inspector performing over 10% NDT.



### Summary of Conversations:

Only general conversations with Steward Machine QC NDT personnel relevant to work and testing performed during this shift.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Gary Thomas 916-764-6027, who represents the Office of Structural Materials for your project.

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**Inspected By:** Webster, Andrew

Quality Assurance Inspector

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**Reviewed By:** Foerder, Mike

QA Reviewer